

5            1.            A method of producing metal hydride misch-metal composite powders, the method comprising the steps of:

10 electrodepositing one or more non-lanthanide metals on the powder via the  
apparatus.

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3. The method of claim 1 wherein the electrodepositing step comprises only partially encapsulating the particles with the one or more non-lanthanide metals.

20 catalytic elements after the step of electrodepositing one or more non-lanthanide metals.

25           6.           The method of claim 5 wherein the step of electrodepositing crystalline catalytic elements comprises electrodepositing one or more of palladium and platinum.

7. The method of claim 1 wherein in the electrodepositing step the one or more non-lanthanide metals comprises one or more of nickel, copper, tin, and zinc.

8. A composition of matter produced by the method of any of claims 1-7.

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9. A metal hydride misch-metal powder comprising a powder whose particles comprise an inner core comprising one or more lanthanide metals and a porous outer encapsulant comprising one or more non-lanthanide metals.

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10. The powder of claim 9 wherein said particles additionally comprise crystalline catalytic elements on outer surfaces of said particles.

11. The powder of claim 10 wherein said crystalline catalytic elements comprise one or more noble metals.

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12. The powder of claim 11 wherein said crystalline catalytic elements comprise one or more of palladium and platinum.

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13. The powder of claim 9 wherein said one or more non-lanthanide metals comprises one or more of nickel, copper, tin, and zinc.

14. The powder of claim 9 wherein said inner core additionally comprises one or more of nickel and titanium.